

An Observation of Fea's Petrel, *Pterodroma feae*
(Procellariiformes: Procellariidae), Off the
Southeastern United States, With Comments on the Taxonomy
and Conservation of Soft-plumaged and Related Petrels
in the Atlantic Ocean

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ABSTRACT—The soft-plumaged petrel and related species (*Pterodroma* spp.) remain one of the most poorly known seabird taxa in the Atlantic Ocean, and there is cause for serious concern over the continued survival of two North Atlantic forms. Soft-plumaged petrels were formerly considered to be a single, albeit morphologically variable, complex of one species. However, taxonomists now generally consider the complex to contain at least three species including the nominate. We report a marine occurrence of a North Atlantic species, probably Fea's petrel *P. feae*, from the South Atlantic Bight off the coast of the southeastern United States. We describe morphological characteristics for separating the various forms and consider the recent at-sea sightings in relation to dispersal factors such as seasonal wind regimes and coassociation with other seabird species that regularly disperse to western sectors from eastern sectors in the North Atlantic Ocean.

Gadfly petrels in the genus *Pterodroma* are known to disperse widely over the world's oceans, often at considerable distances from their natal colonies (Bourne 1967). Soft-plumaged petrels, *P. mollis* (Gould), are medium-sized gadfly petrels breeding in the Atlantic Ocean, the southern Indian Ocean, and the South Pacific Ocean. Although widely distributed, the number of island colonies is limited, and relative-

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ly few at-sea observations of either soft-plumaged or related northern populations have been made away from their breeding areas (Collar and Stuart 1985). We report such a sighting from the waters off the southeastern United States and provide some field marks (see also Enticott 1991) that may be useful for differentiating forms within a difficult taxonomic complex formerly regarded as a single species (Bourne 1983a).

Sighting description—On 9 November 1984, two of us (J.C.H. and C.A.F.) observed an unusual gadfly petrel with other procellariiforms during a census of seabirds at the edge of the continental shelf off the Georgia coast. A mixed flock (30-40 individuals) of the black-capped petrel, *Pterodroma hasitata* (Kuhl), Cory's shearwater, *Calonectris diomedea* (Scopoli), greater shearwater, *Puffinus gravis* (O'Reilly), and Audubon's shearwater, *Puffinus lherminieri* Lesson, accompanied by pomarine jaegers, *Stercorarius pomarinus* (Temminck), and herring gulls *Larus argentatus* Pontoppidan, was seen feeding over a fish school near the western frontal boundary of the Gulf Stream at 31°39'N, 79°24'W. This was approximately 145 km due east of St. Catherine's Island, Georgia (depth 250 m, surface temperature 25.5°C). We initially noticed a gadfly petrel without a white nape or rump in the feeding flock at 1625 EST. During the next 15 minutes, we watched from opposite ends of the stationary research vessel while the bird flew and foraged with other seabirds. It was seen from as close as 30 m through 9 x 35 and 10 x 40 binoculars.

J. C. Haney noted that, compared with the high bounding flight of nearby black-capped petrels, this gadfly petrel had more rapid wingbeats and flew closer to the ocean surface. It was not noticeably different in size from the black-capped petrel, and like that species, it alternated banking and gliding with first the dorsal and then the ventral surface exposed to the observers. The bird's overall appearance was dark gray above and white below. The gray tail was wedge-shaped and slightly paler than the back, without light-colored upper tail coverts. The crown appeared darker than the nape and hindneck, and the forehead was white. No dark facial mask around the eye was observed. There was conspicuous mottling or streaking along the bird's flanks. This field mark was very obvious and set the bird apart from nearby black-capped petrels which have clear white flanks. The bird did not have a complete breast band, although it did have a short, ventrally-projecting light gray bar on both sides of the neck in front of the wings. C. A. Faanes noticed that the underwing coverts were noticeably gray to the base of the primaries. The primary feathers appeared white-based, reminiscent of a jaeger in flight, suggesting that the bird may have been molting its wing coverts at the time. The upperwings

were medium gray, darker on the wing coverts. The bill was dark gray or black.

Taxonomy and identification—Various field guides on board indicated that the bird must belong to one of the North Atlantic gadfly petrels closely related to the soft-plumaged petrel *P. mollis*. The wholly dark underwing eliminated all other *Pterodroma* that have been documented as occurring in the North Atlantic (i.e., *Pterodroma hasitata*, *P. cahow* [Nichols and Mowbray], *P. arminjoniana* [Giglioli and Salvadori]). The gray coloration, contrast between back and tail, dark bill, and wholly white underparts ruled out similar petrels from other oceans (i.e., *Lugensa brevirostris* Lesson, *Pterodroma incerta* Bonaparte, *Procellaria cinerea* Gmelin). The soft-plumaged petrels, formerly treated as four or more subspecies (e.g., Mathews 1934, Harrison 1983), have recently been reclassified as three distinct species, *Pterodroma madeira* Mathews, *P. feae* (Salvadori), and the nominate *P. mollis* (Bourne 1983a, Imber 1985, Zino and Zino 1986; see also Sibley and Ahlquist 1990, Warham 1990). All three forms may appear to have various shades of dark gray-brown above, depending upon feather wear and lighting conditions (Enticott 1991). The nominate soft-plumaged petrels from the southern hemisphere are normally darkest, with variable gray markings extending across the upper breast and shading into the white face and chin above but contrasting sharply with the white belly below (Fig. 1). Thus, these birds appear to have a dark head and neck but pale face contrasting with white underparts. Some southern soft-plumaged petrels have a prominent "W" mark on the wing, some have noticeably paler rumps, and in some, the underwing shows variable amounts of contrasting white coloration. The North Atlantic forms are known as the Freira petrel (*P. madeira*) and Fea's petrel (*P. feae*: see Bannerman and Bannerman 1966; known also as "gon-gon" petrel on the Cape Verde Islands [Bourne 1983a, Collar and Stuart 1985]). These two species are both normally paler and grayer above than the nominate, with the entire body white below (Fig. 2, personal observation, J. Enticott personal communication). The amount of black around the eye in these forms ranges from conspicuous to essentially lacking. In general, photographs we examined indicated that both the underwings and upperwings are more uniformly colored in the North Atlantic species.

The Freira petrel and Fea's petrel are difficult to separate on the basis of plumage alone (Bourne 1983a, Fisher 1989). Fea's petrel is larger and is known to nest (in winter) only on the Cape Verde Islands and on Bugio (in the Desertas group), although there are recent sight and vocalization records from the Azores (Bibby and del Nevo 1991) and from Great Salvage Island 300 km south of the

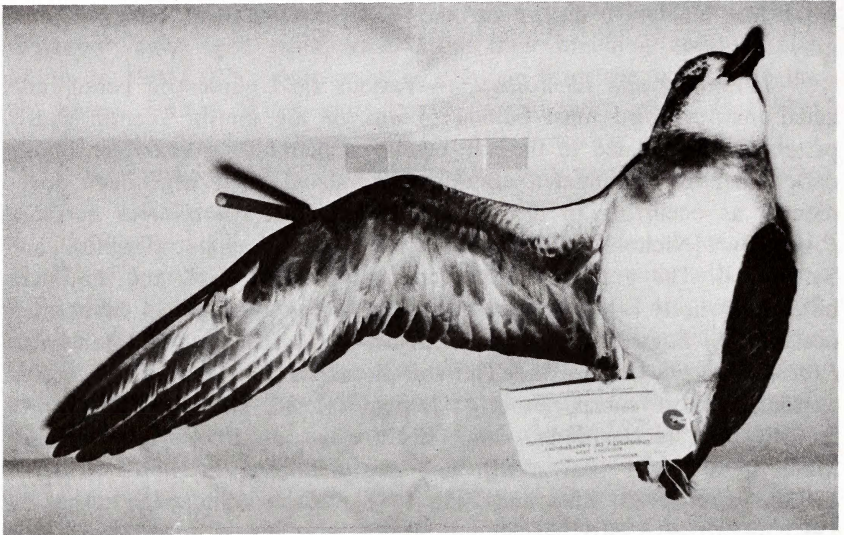


Fig. 1. Specimen of nominate *Pterodroma mollis*, showing underparts, collected from Antipodes Island, 13 February 1969, by J. Warham (Department of Zoology, University of Canterbury, Christchurch 1, New Zealand).

Madeiras (James and Robertson 1985). Measurements of wing and body length in Fea's petrel overlap extensively with the black-capped petrel (Cramp and Simmons 1977, Harrison 1983). When we (J.C.H. and C.A.F.) compared specimens of *P. feae* and *P. hasitata*, we concluded that size differences between these two species would be difficult to detect under field conditions. The Freira petrel (a summer breeder) is significantly smaller than either the Fea's petrel or the soft-plumaged petrel (Cramp and Simmons 1977, Fisher 1989). Bourne (1983a) stated the *P. madeira* has less mottling on the flanks than *P. feae*. However, other accounts differ (see Cramp and Simmons 1977, Harrison 1983), and such relative field marks may not be useful at sea in the absence of direct comparison and experience.

Status and distribution—We believe that the bird we observed must have been *P. feae* for the following reasons. First, the lack of a complete breast band eliminated southern soft-plumaged petrels. None of >290 specimens of the northern forms or numerous living examples examined by P. and F. Zino (personal communication) have a marked breast band, although a small minority of individuals with breast bands have been reported at sea off Madeira (taxonomic identity unknown; B. Zonfrillo personal communication). Generally, there is at least 1 cm of white between the two sides of the partial breast band in the northern species (F. Zino personal communication). Second, the large



Fig. 2. Photograph of *Pterodroma madeira*, showing distinctive dark underwing and pure white underparts, Madeira, 16 June 1969, P. A. Zino (Quinta da Vista Alegre, Rua do Dr. Pita 5, 9000 Funchal, Madeira).

size of the bird we observed (near or identical to black-capped petrel) indicates the Fea's petrel. Third, the population of the smaller Freira petrel is apparently reduced to only a few dozen pairs (A. and F. Zino personal communication), and it has not been recorded conclusively away from the breeding sites. Therefore, it seems less likely to be seen at sea. Finally, the Fea's petrel has been found wandering a similar distance before, e.g. to Israel where it was collected on 8 February 1963 (Bourne 1983b), although the majority of pelagic records for this form have been near the Canary Islands and off western Africa (Bourne and Dixon 1973, 1975; Lee 1984).

Neither the soft-plumaged nor related petrels have yet been accepted onto the official list of North American birds (cf. A.O.U. 1983, 1985). Lee's (1984) observation of a soft-plumaged petrel off North Carolina on 3 June 1981 was the first report for this continent; that individual had a complete breast band, a trait that points to a southern origin. It is notable that Lee's observation occurred during austral winter, a period when the southeast trade winds extend north across the equator and are liable to drift southern-hemisphere seabirds to the northwest Atlantic (comparable seasonal patterns for northward dispersal by seabirds occur in the Indian Ocean, see Ash [1983]). Similarly, the more northern Fea's petrel appeared off North America to the west of its breeding sites at a time when the northeast tradewinds still extend north. This pattern starts to deteriorate early in the northern winter after which time the westerlies move south to replace the northeast trades (at a time when the Fea's petrel was recorded as vagrant to Israel). In addition to our and Lee's (1984) records of soft-plumaged-type petrels off eastern North America, additional sight reports, including photographs of the nominate soft-plummed petrel, were made during May 1992, also off North Carolina (D. S. Lee personal communication, Anon. 1992).

DISCUSSION

We are aware of the inherent uncertainty in sight records of pelagic seabirds, especially *Pterodroma*, and we advocate photographic documentation when possible. However, we disagree with recent suggestions (Legrand 1985) that records of rare gadfly petrels off the eastern United States be supported with voucher specimens. Most countries, including the United States, have little jurisdiction over and limited protection for rare pelagic birds beyond coastal waters. Standard collection practices could further reduce the numbers of Atlantic petrels, some of which are now composed of only a few dozen breeding pairs. This risk seems unwarranted.

The soft-plumaged petrel complex remains one of the least known and seriously threatened seabird taxa in the Atlantic Ocean. There is cause for serious concern over the continued survival of the North Atlantic species. The total population of Freira petrels (*P. madeira*) may consist of no more than 50 pairs nesting at the higher elevations of Madeira, making it Europe's rarest bird (Buckle and Zino 1989). During the late 1980s, several failed breeding attempts were recorded, possibly because of interference by rats and/or predation by feral cats (A. Zino personal communication). The population of Fea's petrels (*P. feae*), which is unlikely to total more than several hundred pairs, is subject to human predation arising from medicinal use of the bird's body fat (Cramp and Simmons 1977, Collar and Stuart 1985). Breeding in dispersed colonies in burrows, earth screes, and rocky outcrops, this ground-nesting species is also vulnerable to predation by cats, rats, and other feral mammals; deforestation, vegetation destruction, and soil erosion by goats; and possible competition with rabbits for nesting burrows (Collar and Stuart 1985:42).

As in several other eastern and southern Atlantic procellariiforms (for examples, see Lee 1979, 1984; Haney and Wainright 1985), dispersal into the western Atlantic Ocean by petrels of the soft-plumaged complex could prove to be a regular occurrence overlooked owing to the species' rarity rather than casual vagrancy. Fea's petrels have been observed accompanying groups of Cory's shearwaters in the eastern Atlantic at other seasons (Lambert 1980). The mixed-species flock in which we encountered the Fea's petrel was dominated by Cory's shearwaters, a far more common species that occupies a sympatric breeding range with Fea's petrel in the eastern North Atlantic. If such interspecific associations are typical, then the petrel we observed may have followed, or have been locally attracted to, large flocks of trans-Atlantic migrant shearwaters during its wanderings to the offshore waters of the southeastern United States.

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